

## **REMARKS**

Claims 1-11 and 13-24 are now pending in the application. Minor amendments have been made to the claims to overcome rejections of the claims under 35 U.S.C. § 112. The amendments to the claims contained herein are of equivalent scope as originally filed and, thus, are not a narrowing amendment. Claim 12 has been cancelled as redundant. Claim 1 has been amended to correct a typographical error. Support for the amendment to Claim 1 will be found, for example, at paragraph [0030], lines 1-4, and at paragraph [0033], lines 2-4. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

## **DRAWINGS**

The drawings stand objected to by the draftsman for certain informalities concerning margins and thickness of lines. Applicants have attached replacement formal drawings to correct these informalities. No substantive changes have been made in the replacement formal drawings.

Claims 5 and 18 were objected to by the Office for stating the term "at least one" in conjunction with "and." The Office assumed that the word "and" was meant to mean "or" to accommodate the "at least one" terminology.

It is requested that the objection to Claims 5 and 18 be withdrawn. It is submitted that the feature "... at least one member of the group consisting of an aircraft communication and reporting system on said aircraft, a maintenance control display unit on said aircraft, and a digital flight data acquisition unit on the aircraft" is a properly worded Markush group, which requires the conjunction "and" between members of the group. MPEP 2173.05(h)(I). In Claim 5, the recitation of "at least one" is intended to mean that the claim includes within its scope methods in which the aircraft condition monitoring system obtains aircraft performance data from any one member of the recited group, and methods in which the aircraft condition monitoring system obtains such data from more than one member of the recited group. Thus, it is submitted that the wording of Claim 5 is correct as originally submitted, and that this wording conforms to current U.S. practice regarding Markush groups. It is thus requested that the objection to this claim be withdrawn.

If, notwithstanding the foregoing, the Office still believes the wording is objectionable, to advance the prosecution of this Application, Applicants would agree to enter an amendment, or to accept an Examiner's amendment, as follows:

5. A method in accordance with Claim 4 further comprising said aircraft condition monitoring system obtaining said aircraft performance data via an electronic communication from ~~at least one member of the group consisting of~~ an aircraft communication and reporting system on said aircraft, a maintenance control display unit on said aircraft, ~~and~~ or a digital flight data acquisition unit on the aircraft, or a combination thereof.

It is submitted that Claim 5, were it to be amended as above, is substantively identical to the present Claim 5.

Claim 18 does not contain the language objected to by the Office, so Applicant believes that this objection should be withdrawn as regards Claim 18. It is believed that the Office may have intended to apply the objection to Claim 19 rather than Claim 18.

Claim 19 recites a Markush group similar to that recited in Claim 5. It is thus submitted that the Markush group recited in Claim 19 is correct and conforms to current U.S. practice for the same reasons given above with respect to Claim 5.

If, notwithstanding the foregoing, the Office still believes the wording is objectionable, to advance the prosecution of this Application, Applicants would agree to enter an amendment, or to accept an Examiner's amendment, as follows:

19. An apparatus in accordance with Claim 18 further comprising ~~at least one member of the group consisting of an aircraft communication and reporting system on the aircraft, a maintenance control display unit on said aircraft, and~~ or a digital flight data acquisition unit on the aircraft, or a combination thereof, and wherein said at least one member is operatively coupled to said aircraft condition monitoring system to communicate information to data communication apparatus wirelessly via said aircraft data services link.

It is submitted that Claim 19, were it to be amended as above, is substantively identical to the present Claim 19.

Claim 20 was objected to for containing the informality "A429 bus". The Office correctly assumed that this term meant "ARINC 429 bus". Claim 20 has been amended to recite "ARINC 429 bus. Because the term "A429" was defined by Applicants at paragraph [0032], line 8 in the Application as originally filed, it is submitted that this amendment to Claim 20 effects no substantive change thereto.

**REJECTION UNDER 35 U.S.C. § 112**

Claim 24 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

The Office asserted that the feature "said remotely controllable electronic switch" did not have sufficient antecedent basis. The term "said" has been changed to "a", which corrects this typographical error without changing the Claim 24 substantively.

For this reason, it is submitted that the rejection of Claim 24 under 35 U.S.C. § 112 does not apply to Claim 24 as herein amended. It is thus requested that this rejection be withdrawn.

#### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-5, 7-9, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wright et al. (U.S. Pat. No. 6,160,998) in view of Houlberg et al. (U.S. Pat. No. 5,307,505). This rejection is respectfully traversed.

The Office has correctly asserted that Wright et al. does not teach electronically switching a communication path from an aircraft data services link to an avionics unit responsive to download data. The Office also correctly asserted that Wright et al. also does not teach electronically communicating the download data from the data communication apparatus to the avionics unit via the electronically switched communication path.

The Office asserted that Houlberg et al. teaches, at column 6, lines 32-36, electronically switching a communication path responsive to the download data or electronically communicating the download data from the data communications apparatus to the avionics unit via the electronically switched communication path. In

fact, what Houlberg et al. discloses at column 6, lines 32-36 is a manual operation undertaken when it is desired to load or skip a data file. An operator is said to be able to "press the exec/skip switch to the exec position to load the data file or skip position to not load the data file." Thus, the switching taught and suggested in Houlberg et al. is manual switching, not electronic switching. Nevertheless, even if the Office reads Houlberg et al. expansively as teaching "electronic switching," this switching is not "responsive to the download data" but is instead responsive to a choice or decision made by an operator to load or not load a data file. Indeed, the switching may be an arbitrary decision by the operator, as there does not appear to be a specific teaching or suggestion in Houlberg et al. to make the switching dependent upon the download data. (Another way of viewing Houlberg et al. is that the switching taught and suggested therein is responsive to the press of a switch, rather than to the download data.)

By contrast, Applicant's Claim 1 recites, "A method for wirelessly communicating data between a plurality of avionics units on an aircraft and a data communication apparatus, said method comprising: ... electronically switching a communication path from said aircraft data services link to said avionics unit responsive to said download data; and electronically communicating said download data from said data communication apparatus to said avionics unit via said electronically switched communication path." Applicants explicitly distinguish such electronic switching responsive to download data from manual switching at paragraphs [0032] to [0033]. No such electronic switching responsive to download data is shown or suggested in either Wright et al. or Houlberg et al. or their combination. Furthermore, and as a consequence thereof, the communication of download data does not occur via "said electronically switched communication path."

Thus, it is submitted that Claim 1 is patentable over Wright et al. in view of Houlberg et al.

Claims 2-5 and 7-8 also stand rejected over Wright et al. in view of Houlberg et al. Claims 2-5 and 7-8 are each dependent, directly or indirectly, upon Claim 1. When the recitations of Claims 2-5 and 7-8 are considered in combination with the recitations of Claim 1, it is submitted that Claims 2-5 and 7-8 are also patentable over Wright et al. in view of Houlberg et al. for the reasons given with respect to Claim 1.

Claim 9 also stands rejected over Wright et al. in view of Houlberg et al. The Office correctly notes that Wright et al. does not teach electronically switching a communication path from an avionics unit to an aircraft data services link in the aircraft and electronically communicating data from the avionics unit to the aircraft data services link via the electronically switched communication path. As indicated above, Houlberg et al. teach manual switching, not electronic switching.

By contrast, Claim 9 recites, "A method for wirelessly communicating data between a plurality of avionics units on an aircraft and a data communication apparatus, said method comprising: electronically switching a communication path from one said avionics unit to an aircraft data services link in the aircraft ..." This electronic switching is distinguished from the manual switching taught by Houlberg et al. See paragraphs [0033] and [0034] and the discussion of Claim 1 above. For these reasons, it is submitted that Claim 9 is patentable over Wright et al. in view of Houlberg.

Claims 11 and 12 also stand rejected over Wright et al. in view of Houlberg et al. Claim 11 is directly dependent upon Claim 9. Thus, it is not necessary to consider the additional features recited in Claim 11 to determine patentability of

Claim 11 over the cited combination of references. When the recitations of Claim 11 is considered in combination with the recitations of Claim 9, it is submitted that Claim 11 is also patentable over Wright et al. in view of Houlberg et al. for the reasons given with respect to Claim 9.

Claim 12 is redundant over Claim 9. For that reason, Claim 12 has been cancelled, so the rejection of Claim 12 no longer applies and should be withdrawn.

For the above reasons, it is requested that the rejection of Claims 1-5, 7-9, 11 and 12 over Wright et al. in view of Houlberg et al. be withdrawn.

Claims 6 and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Houlberg et al. and further in view of Weiler et al. (U.S. Patent No. 5,970,395.

Wright et al. in view of Houlberg et al. are as discussed above. As indicated above, the combined disclosures of Wright et al. and Houlberg et al. do not teach or suggest electronic switching responsive to download data, as Applicants claim in Claim 1. In addition, and as a consequence thereof, the communication of download data does not occur via "said electronically switched communication path," as claimed in Claim 1 and indicated above.

Weiler et al. is directed to an apparatus for detecting high frequency interference radiation signals, such as radio frequency emissions, on board an aircraft. The apparatus includes at least two receiver units for receiving and measuring the interference radiation signal, and a monitoring unit for evaluating the signal measurement results. (See Abstract.) Communication between these units takes place on an ARINC 429 bus, col. 6, lines 13-22. However, Weiler et al. does not disclose how the units are switched, and does not disclose any switching that is

responsive to download data, as Applicants claim in Claim 1. Moreover, Weiler et al. does not disclose the communication of download data via "said electronically switched communication path," as claimed in Claim 1. Therefore, Claim 1 is submitted to be patentable over Wright et al. in view of Houlberg et al. and further in view of Weiler et al.

Claim 6 is directly upon Claim 1. When the recitations of Claim 6 are considered in combination with the recitations of Claim 1, it is submitted that Claim 6 is likewise patentable over Wright et al. in view of Houlberg et al. and further in view of Weiler et al.

Claim 9 recites electronic switching not shown or suggested in Wright et al. in view of Houlberg et al., as discussed above. As noted above, Weiler et al. does not disclose how the units disclosed therein are switched. It is therefore submitted that Claim 9 is patentable over the combination of Weiler et al. in view of Houlberg et al. and further in view of Weiler et al.

Claim 10 is dependent upon Claim 9. When the recitations of Claim 10 are considered in combination with the recitations of Claim 9, it is submitted that Claim 10 is likewise patentable over Wright et al. in view of Houlberg et al. and further in view of Weiler et al.

It is therefore requested that the rejection of Claims 6 and 10 over Wright et al. in view of Houlberg et al. and further in view of Weiler et al. be withdrawn.

Claims 13-16, 18, 19, and 21-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Houlberg et al. and further in view of Bird et al. (U.S. Patent No. 5,079,707).

The Office correctly asserts that Wright et al. does not teach an electronic switch, a plurality of avionics units coupled to a remotely controllable switch, and control of the electronic switch to selectively couple the avionics units to the aircraft data services link. The Office further asserts that Houlberg et al. teaches an electronic switch and a plurality of avionics units coupled to the switch. However, as indicated above, the switch taught by Houlberg et al. is a simple manual switch that responds to a human pressing a button to either load or not load data. The switch is not responsive to data, but rather to a button press. Moreover, there is no teaching or suggestion of a processor responsive to ARINC 615 or 615A data in a standard format to identify a destination avionics unit.

Bird et al. describe an integrated certification-calibration system for a test system having multiple test instruments (See abstract). Bird et al. disclose a switch matrix 48 on an automated test equipment (ATE) cart 18 that provides interconnections between terminals on test instruments 32-46 and individual signal interface cable pins. Switch matrix 48 is processor controllable. See col. 5, lines 49-54. A system controller 50 directs operation of individual test instruments 32-46, which are also processor controllable (see col. 5, lines 36-44). Controller 50 has a keyboard-printer 52 for loading instructions and data and a display touch screen 54 for display and input of information. Bird et al. teach that the touch screen allows a technician to enter instructions and information into controller 50. See col. 5, lines 55-62. A certification cart 100 and certification instruments 104-116 are also provided. See col. 7, lines 58-61. Each certification instrument is also processor controllable, col. 8, lines 5-7. Another processor controllable switch matrix 119 controls the interconnection of certification instruments 104-116 to a receiver board 117 (col. 8, lines 22-24). A menu/controller 120 can be used by technicians to

manually control test instruments 32-46, certification instruments 104-116, and switch matrices 48 and 119, as described at col. 8, lines 42-44. However, in this mode of operation, there is no teaching or suggestion of a processor responsive to ARINC 615 or 615A data in a standard format to identify a destination avionics unit.

In another mode of operation, a test executive 68, which runs system controller 50, is used by a technician to control the test instruments 32-46 and switch matrix 48, see col. 6, lines 49-55, or test executive 68 is used to invoke a test application that automatically runs a function test, see col. 6, lines 55-58. When ATE 18 is used to test a subsystem of aircraft 11, the ATE is connected to the aircraft by signal interface cable 47. One or more test applications 70, 71, or 72 can then be selectively run on system controller 50 so that ATE 18 will, in turn, automatically perform functional tests on aircraft 11. Any such test of aircraft 11 may involve the generation of one or more stimulus signals for input into the aircraft and monitoring a response to the stimulus from one or more output lines. See col. 7, lines 6-15. The other ATEs 14, 16, and 20 function in the same general manner as ATE 18, col. 7, lines 23-24. Certification instructions 136 are executed by system controller 50 to perform certification of test instruments 32-46 or 48. The certification instructions 136 are the instructions that control the test instruments 32-48, the certification instruments 104-116, and switch matrices 48 and 119 so that the test instruments can be certified, col. 9, lines 17-23. Drive library 152 contains a number of individual drivers 162-166 that are specific instructions responded to by test instruments 32-48, the certification instruments, 104-116, and switch matrices 48 and 119, col. 10, lines 8-11. A technician can also directly control test instruments 32-48, the certification instruments 104-116, and switch matrices 48 and 119 through system controller 50. (See col. 8, lines 42-44.) None of these modes of operation disclosed by Bird et al.

teach or suggest a processor responsive to ARINC 615 or 615A data in a standard format to identify a destination avionics unit.

Bird et al. also teach a certification test in which switch matrices 48 and 119 are set up so that a test instrument being certified is connected to appropriate certification instruments 104-116. See col. 12, lines 24-30. At a conclusion of a certification test, switch matrices are opened so that test instruments 32-45 or 46 are disconnected from certification instruments 104-116. However, there is no indication that any processor that is responsive to ARINC 615 or 615A data in a standard format is used to control either switch matrix.

Thus, even in the combined teachings of Wright et al, Houlberg et al. and Bird et al., there is no teaching or suggestion of "... an aircraft data services link having a processor, ... and an electronic switch; ... wherein said processor is responsive to data received from the data communication apparatus via said means for wireless transmitting and receiving to identify an intended destination said avionics unit from information contained in a standard format of downloaded ARINC 615 or 615A compliant data, and to control said electronic switch to selectively couple said intended destination avionics unit to said aircraft data services link to provide data communication between said intended destination avionics unit and the data communication apparatus via said aircraft data services link," as Applicants claim in Claim 13, as herein amended. (Support for "identify an intended destination said avionics unit from information contained in a standard format of downloaded ARINC 615 or 615A compliant data" will be found at paragraph [0033], lines 4-8. Support for "selectively couple said intended destination avionics unit to said aircraft data services link" will be found at paragraph [0033], lines 8-12. Other changes in Claim 13 are for consistency and grammatical correctness.)

Thus, it is submitted that Claim 13 as herein amended is patentable over the combination of Wright et al., Houlberg et al. and Bird et al.

Claim 24 has been amended in a manner similar to that of Claim 13, and is submitted to be patentable over the combination Wright et al., Houlberg et al. and Bird et al. for reasons similar to those given above with respect to Claim 13.

Claims 14-16, 18, 19, and 21-23 are dependent, directly or indirectly, upon Claim 13. When the recitations of Claims 14-16, 18, 19, and 21-23 are considered in combination with those of Claim 13, it is submitted that Claims 14-16, 18, 19, and 21-23 are likewise patentable over the combination of Wright et al., Houlberg et al. and Bird et al.

For the above reasons, it is requested that the rejection of Claims 13-16, 18, 19, and 21-24 over Wright et al., in view of Houlberg et al. and further in view of Bird et al. be withdrawn.

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Houlberg et al. and Bird et al. as applied to Claim 13, and further in view of CNS Systems, Inc. ("Data for the Air Transport Industry").

Wright et al. in view of Houlberg et al. are as discussed above.

CNS Systems, Inc. discloses a number of VHF data link technologies, including AM/MSK, D8PSK, and FM/FMSK. However, CNS Systems, Inc. does not teach or suggest any kind of electronic switch responsive to ARINC 615 or 615A data. CNS Systems, Inc. therefore adds nothing to Wright et al., Houlberg et al., and Bird et al. to teach or suggest the patentable features claimed in Claim 13 as herein amended, but not taught or suggested by the combination of Wright et al., Houlberg et al., and Bird et al.

On the other hand, Claim 17 is dependent upon Claim 13. When the recitations of Claim 17 are considered in combination with those of Claim 13, it is submitted that Claim 17 is likewise patentable over Wright et al. in view of Houlberg et al. and Bird et al., and further in view of CNS Systems, Inc. Thus, it is requested that the rejection of Claim 17 over this combination of references be withdrawn.

Claim 20 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Houlberg et al. and Bird et al. as applied to Claim 13, and further in view of Weiler et al. (U.S. Patent No. 5,970,395).

Wright et al. in view of Houlberg et al. and Bird et al. are as discussed above.

Weiler et al. is directed to an apparatus for detecting high frequency interference radiation signals, such as radio frequency emissions, on board an aircraft. The apparatus includes at least two receiver units for receiving and measuring the interference radiation signal, and a monitoring unit for evaluating the signal measurement results. (See Abstract.) Weiler et al. state that, in a particular embodiment of the invention, receiver units 3 and monitoring unit 5 are embodied in such a manner that they can cooperate in a problem-free manner with a standard data bus, for example, a data bus according to the standard ARINC 429, that is already typically present in the aircraft. Namely, receiver units 3 and monitoring unit 5 are connected to the preexisting data bus. No details of how such bus sharing is accomplished are provided, nor is there any teaching or suggestion of any processor responsive to data received from a data communications apparatus to identify an intended destination avionics unit from information contained in a standard format of downloaded ARINC 615 or 615A compliant data. In addition, there is no teaching to use the processor to control an electronic switch coupled to a plurality of avionics

units to selectively coupled the intended destination avionics unit to an aircraft data services link to provide communication between the intended destination avionics unit and a data communication apparatus external to the aircraft. As indicated above with respect to Claim 13, Wright et al., Houlberg et al., and Bird et al. in combination do not teach or suggest these features, and Weiler et al. adds nothing to the combination of Wright et al., Houlberg et al. and Bird et al. to do so. Therefore, Claim 13 is patentable over the combination of Wright et al., Houlberg et al., and Bird et al., further in view of Weiler et al.

Claim 20 is dependent upon Claim 13. When the recitations of Claim 20 are considered in combination with the recitations of Claim 13, it is submitted that Claim 20 is likewise patentable over Wright et al. in view of Houlberg et al. and Bird et al., further in view of Weiler et al. For this reason, it is requested that the rejection of Claim 20 over Wright et al. in view of Houlberg et al. and Bird et al., further in view of Weiler et al. be withdrawn.

#### **NEW CLAIMS**

Claim 25 is new. Claim 25 is dependent upon Claim 1, and adds patentable subject matter similar to that discussed with respect to Claim 13 above, namely, that electronic switching comprises identifying an intended destination avionics unit from information contained in a standard format of ARINC 615 or 615A download data. Support for Claim 25 will be found at paragraph [0033], lines 4-12.

#### **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully

requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned directly at (314) 726-7514, or by calling (248) 641-1600 and asking the operator for the undersigned in the St. Louis, Missouri office by name.

Respectfully submitted,

Dated:

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